Going Concern Audit Opinions: Good News for Corporate Insiders?

We report that corporate insiders are able to profit from conservative first time going concern audit opinions (GCOs). GCOs comprise a high percentage of Type I error that transforms into a going concern opinion withdrawal (GCOW) within one year. We conjecture and affirm that the anticipatory trading of corporate insiders, who have access to firm based private information, drives positive abnormal returns before a GCOW and this increased trading volume is associated with firms that have audit determined financial issues. The degree of economic significance is highlighted by constructing arbitrage hedge portfolios that follow the trading of all corporate insiders in GCOW firms, by returning abnormal profits of 25.36% over 60 days.

1. Introduction

Audit opinions arise from an external audit after examination of an organization's financial reports and operations by a professional and independent accounting firm. One of the most important is the going concern audit opinion (GCO) which highlights negative information to investors.[1] The economic importance of a GCO derives from the fact that it is the only modified audit opinion accepted in public company filings by the Securities and Exchange Commission (SEC), and it contains information about financial difficulties that gave rise to the GCO (Defond and Zhang, 2014). Consequently, the negative news of a GCO is more often associated with substantial negative market reactions—both in the short-term (Fleak and Wilson 1994; Carlson et al. 1998; Menon and Williams 2010) and in the longer-term (Taffler et al. 2004; Kausar et al. 2009).

Whilst the general market reaction to GCO's is negative and firms subsequently fail, they can be polluted with opinions that are subsequently reversed within short periods (Type I error), with prior research reporting substantial Type I error contained in the opinion (Hopwood et al. 1989; Raghunandan and Rama, 1995; Foster et al., 1998; Lennox, 1999; Geiger and Rama, 2006; Kausar et al., 2009; Menon and Williams, 2010; Myers et al., 2016). For example, Francis and Krishnan (2002) document 80.38% Type I error by Big Six auditors in the US, Kausar et al. (2009) show that 16% of first-time GCO firms in their full sample receive a going concern opinion withdrawal (GCOW) within one year, and Carson et al. (2013) report 98.31% of GCO firms subsequently survive, based on 88,359 US firm-year observations over the period of 2000 to 2010. Similar Type I error rates occur in the UK, Australia, and Belgium.[2]

[1] Under SAS No. 59 (AICPA 1988), auditors are required to assess a firm's going concern ability in the following 12 months. If the auditor has 'substantial doubt' about the entity's ability to carry on the business, the auditor must generate a GCO in the audit report.

[2] See Carson et al. (2013) for a review of the relevant empirical findings. Nogler (1995), reports lower survival rates (around 30–40%), when using a longer-term perspective and a broader definition of corporate failure.

There are several reasons why there might be over-occurrence of Type I error, particularly in the U.S. First, professional standards maintain that a GCO is not a prediction of business failure on the part of the auditor (PCAOB 2015a)—it is a review of a firm's financial status with regard to prior financial years. Second, auditors face litigation risk if they do not report a GCO and the firm subsequently fails (Type II error)—with financial consequences high enough to threaten the viability of even the largest audit firm (Defond and Zhang, 2014). These factors lead auditors to behave in a conservative manner and lean towards recording a higher possibility of recording Type I error than is justified by fundamentals (Thoman, 1996; Deng et al., 2014).

The question then is how do we filter out differential audit signals and provide viable information to the market on long term viability? In this paper we use the recorded trading of corporate insiders (executives, directors, major shareholders) as predictors of subsequent one-year going concern withdrawals (GCOW).[3] We use corporate insiders because they know more about obtuse firm operations and financial accounts than any outsider and use that asymmetric knowledge to trade. For example, insiders profitably trade on the accrual/cash ratio (Beneish and Vargus, 2002, Hodgson and Van Praag, 2006), sell before a break in positive earning strings (Ke et al., 2003), and trade on the R&D intangible (Aboody and Lev, 2000).

Our paper compliments prior GCO research that reveals an empirical tension around price and information impacts. One strand casts doubt on the information conveyed by GCO announcements finding insignificant negative price reactions (Elliot, 1982; Dodd et al. 1984; Ogneva and Subramanyam, 2007; Herbohn et al. 2007). Explanations variously invoke capital market efficiency (Herbohn et al. 2007), the concurrent release of other financial information (Elliott 1982; Dodd et al.

[3] We use legal corporate insider transactions required to be reported to the SEC within two business days from the time of the transaction.

1984; Blay et al. 2016; Myers et al. 2016), or the fact that EDGAR allows investors to immediately access all important company information events.

A competing strand asserts that markets are incompletely informed beforehand, with GCOs invoking significant negative abnormal returns at announcement and in subsequent periods (Taffler et al., 2004; Kausar et al. 2009; Menon and Williams 2010). Kausar et al. (2009) and Menon and Williams (2010) attribute the lack of US market reaction to missing GCO observations, investor inattention, and a market unable to impound the impending (and ex-post) GCO information in a timely manner. Moreover, unexpected GCOs are associated with significantly greater negative stock price reactions (Loudder et al., 1992; Fleak and Wilson 1994; Blay and Geiger 2001), whilst the absence of an expected GCO is associated with positive return reversals (Jones, 1996).

Given the tension between mixed results some research focusses on market participants who have greater insight. For example, institutional shareholders short a greater level of stocks before a GCO (Kaplan et al., 2014), and start selling stocks six months before GCO release and remain as net sellers in the subsequent quarter (Geiger and Kumas, 2016). In addition, Pheixinho and Taffler (2014) document that financial analysts downgrade stock recommendations and reduce coverage of firms before they receive a GCO.

To summarise, prior literature conveys a story of conservative auditors prone to over-use GCOs to circumvent legal censor and inattentive investors who do not anticipate or under/overreact to GCO announcements. Hence, these factors induce us to ask if there are possible arbitrage opportunities and, if so, who is in an enhanced position to take advantage? Building on the insights of Kaplan et al., (2014) and Geiger and Kumas (2016), we argue that corporate insiders who have intimate first-hand knowledge of firm operations, are a reliable barometer of the quality of a GCOs. This prognosis is supported by a range of studies that report insiders adjust trading behaviour around major corporate

events and earn significant positive cumulative abnormal returns (Rozeff and Zaman, 1998; Lakonishok and Lee, 2001; Ke et al., 2003; Piotroski and Roulstone, 2005; Ravina and Sapienza, 2010; Ryan et al., 2016). Prior research has examined insider trading around GCOs, but the focus has been on trading volumes, and trading before a GCO announcement. For example, Chen et al. (2013) find a negative association between the level of insider selling and potential first-time GCOs, citing pressure lobbying by firms to modify opinions. However, Stanley at al. (2009) and Dhaliwal et al. (2016) reject the lobbying pressure hypothesis by reporting that insiders execute abnormal sales before the announcement of a GCO, and suggest ex-ante information based trading is a better explanation.

Our paper extends these studies in several ways. We add abnormal returns as a measure of economic impact as well as trading volumes, decompose first time GCOs into continuing GCOs at the next annual report (GCOCs) and withdrawn (GCOWs), and extend the analysis to market reactions from pre-announcement to post-reaction on publicly available audit reports. Using a US sample of 537 first-time GCO firms over fiscal years 1999 to 2015, we show that the 290 GCOC firms continue their downward negative return trend, whilst 247 GCOW firms attain positive returns. We find that net insider purchase activity predicts GCOW's, front-runs abnormal returns with a strong association between documented financial concerns (Menon and Williams, 2010), with corporate insiders sharing information within a network consistent with herding (Alldredge and Blank, 2018). Finally, the decomposition into GCOC and GCOW firms offers an alternative explanation to prior results which report no price reaction after GCO announcements. Using propensity score matching, results are robust to an alternative explanation that insiders, instead of trading on GCO Type I error, are trading on improved financial performance. In addition, after dropping trades which are classified as routine following Cohen et al.'s (2012) algorithm, all prior results still hold.

We contribute in several respects. To the best of our knowledge, this study is the first to provide evidence that corporate insiders make use of asymmetric knowledge of an auditor's GCO Type I error, to gain abnormal profits by strategically timing their trading. In doing so, we extend insider trading/GCO studies to ex-post trading on public announcements, show how insider trading volume converts into abnormal returns, and condition trading and returns on firm risk factors and insider hierarchy. Results inform investors of the economic consequences of Type I audit reporting error, and offer an explanation as to why prior studies, that do not separate GCOWs from GCOCs, provide conflicting evidence on post GCO abnormal returns.

The remainder of the paper now proceeds as follows. Section 2 provides a review of related literature, section 3 develops hypotheses, and section 4 contains the research models. Section 5 describes the data collection process and main results, section 6 reports several additional analysis and robustness tests, and section 7 concludes the paper.

2. Background Review

2.1 The Going Concern Opinion

A mandatory requirement in auditing standards is that auditors must assess the going concern ability of the firm in each and every audit (PCAOB, 2015b). AICPA (1988) and the Private Securities Litigation Reform Act of 1995 require auditors, when reporting a going concern opinion, to include an explanatory paragraph about the financial difficulties that gave rise to that uncertainty and any viable plans that have the capability of removing the threat to firm continuation.

Specific guidance on important matters to be considered by auditors in assessing their clients' going concern status is contained in Statement on Auditing Standards (SAS) No. 2 (AICPA 1974). In SAS No. 34 (AICPA 1981) and later, SAS No. 59 (AICPA 1988), auditors are required to evaluate if there is substantial doubt regarding clients' ability to continue as a going concern for a reasonable

period of time—not to exceed one year beyond the balance sheet date. In particular, auditors evaluate corroborative evidence on identified conditions and events, and assess the probability of the success of management in implementing plans to mitigate going concern risks. If they conclude that substantial doubt exists, and the entity has adequately disclosed relevant details in the financial statements, auditors modify the audit opinion to include an explanatory paragraph to account for substantial doubt. Hence the issuance of a GCO impacts firm valuation if the market perceives that it conveys the auditor's private assessment of the financial condition of the firm.

One implied purpose of the assessment of a firm's going concern ability is to inform outside users about concerns of financial stability and consequently risk and valuation. Given the auditor has inside information of client financial performance and access to relevant management plans, this represents new information. Hence, such an *ex-post information hypothesis* predicts that GCO announcements have short term negative connotations for firm value (Mutchler, 1984) and Kausar et al. (2009) document a negative 14% market drift in the subsequent year for US firms receiving first time GCOs. The negative drift is variously associated with noisier and/or less persistent earnings (Choi and Jeter, 1992), small firms that have relatively low institutional ownership and financial distress (Blay et al., 2016), and unexpected GCOs (Loudder et al., 1992; Fleak and Wilson 1994).

Other research suggests that market reaction is inconsistent in the short term because of investor inattention, behavioural dispositions, insufficient skills or acquisition costs (Blankespoor et al., 2017). For example, Taffler et al. (2004) [UK study] and Menon and Williams (2010) [US study] show that the average return of CGO firms underperforms the average return of size matched non-GCO firms only over the long-run. They argue that incomplete markets are inefficient and are unable to impound the information contained a GCO in a timely fashion. The review article of Ittonen (2012) offers explanations based on confounding market signals, rather than inefficient markets. Classifying GCO

reactions by short-window and long-window reactions, Ittonen (2012) posits that conflicting empirical results occur because of the confounding release of other value relevant information. For example embedded signals of impending bankruptcy (see also Chen and Church, 1996; Holder-Webb and Wilkins, 2000), and Type I error that results in GCOW (see also Fields and Wilkins, 1991; Fargher and Wilkins, 1998). Regardless of interpretation this research suggests an *impeded information hypothesis* whereby information leaks into prices at a constrained pace.

On the other hand an *ex-ante information hypothesis* predicts no-reaction when a GCO is released. Ex-ante information is effectively inferred from past financial statements (Mutchler, 1985; Dopuch et al., 1987), and from the fact that an impending GCO is often preceded by important events that are disclosed prior to the issuance of the 10-K (Elliott 1982; Dodd et al. 1984). Additionally, EDGAR allows investors to immediately access company filings and Regulation Fair Disclosure prohibits the selective disclosure of material information to parties outside of the company. Expectations may also be influenced by the actions of better informed institutional traders and financial analysts. For example, institutional shorting and selling stocks up to six months before a GCO announcement (Kaplan et al., 2014; Geiger and Kumas, 2016),[4] and the actions of financial analysts who issue downgrade recommendations and cease coverage for firms before they receive a GCO (Pheixinho and Taffler, 2014).

2.2 Type I Error and Going Concern Withdrawals

Prior research reports considerable Type I going concern reporting errors occur for firms that do not eventually go bankrupt in the long term (eg., Francis and Krishnan 2002; Geiger and Rama 2006; Menon and Williams 2010; Myers et al. 2016). For example, Francis and Krishnan (2002) identify a mean 80.38% Type I error (143 bankruptcies for 729 GCO firms) by big six auditors in the US from

[4] However, Geiger and Kumas (2016) also find that institutional investors remain as net sellers in the post GCO quarter indicating that the market does not fully anticipate or react in a timely manner.

1990-1994. Hopwood et al. (1989) and Raghunandan and Rama (1995) focus on a short term approach and report that around 90% of going concern firms do not enter into bankruptcy in the following year. A common explanation for Type I error is litigation risk. Defond and Zhang (2014) assert that litigation damage claims against auditors may be large enough to threaten the viability of even the largest audit firm and leads auditors to behave in an excessive risk-averse manner (Thoman, 1996; Deng et al., 2014).

The research of Kausar et al. (2009) addresses the possibility of Type I error and reports that 16% of 1,293 first-time GCO's jn US firms receive a subsequent GCOW. The GCOW has significant economic impact with 25% buy-and-hold abnormal returns (BHARs) in the following 12 months, reversing the prior 12 month downward drift of 17%.[5] Prior studies also find significant price reversals on qualified GCO opinions (Dodd et al., 1984; Dopuch et al. 1987; Fields and Wilkins, 1991), and Fargher and Wilkins (1998) report a reduction in risk. Of note is managerial behavioural reactions that serve to reverse the financial implications of a GCO. A GCO provides incentives for management to implement policies to improve financial performance and retain managerial reputation. Hence, the transition from a GCO to a GCOW contains substantial price related information and traders who can perceive this information in a timely manner can expect to extract arbitrage returns.

3 Hypotheses

3.1 Ex-Post GCO Disaggregation

In framing our first hypotheses there are two research issues raised. The first is whether GCO announcements contain price related information. Do GCOs contain incremental negative

[5] Reversal of GCOs have substantial economic impact. An earlier study by Fields and Wilkins (1991) examined 52 withdrawn "subject to" opinions[5] (STOWs) in the US market from 1978 to 1987 and found announcement day average abnormal returns of 2.298% and a further 2.8% return over the next 10 days.

information that induces post-announcement price changes? Alternatively, has the market already incorporated ex-ante information into prices with a resultant no-announcement price impact?

The second is whether GCOs contain significant levels of Type I error which then converts into a GCOW reversal in the next annual audit review. If Type I error is induced by a risk adverse approach to audit litigation costs and loss of reputation if the firm subsequently goes bankrupt, then if this factor has information content, an erroneous GCO would result in no price impact. On the other hand, if the audit report contained in the GCO contains private information of continued economic problems, then abnormal returns will be negative. Our first hypothesis examines the pooled GCO data, followed by an alternative decomposition hypothesis:

H1A: The pooled announcements of GCO's contain incremental negative information.

H1B: GCO announcements that contain Type I error that lead to a GCOW within one year will have a significantly lower negative impact on stock prices.

In formulating the above hypotheses we introduce tension in the information flow assumptions. In essence, H1A overtly assumes that GCO announcements contain incremental information and the predictions of the *ex-ante information* hypothesis do not hold. H1B implicitly assumes that the market is aware of the potential error in an auditor's judgement. However, we conjecture that all firms contain asymmetric information to outside investors and the announcement of a GCO is a noisy market signal. Our prediction is that any market price reaction will be slow and will be empirically consistent with an *impeded information hypothesis.*

3.2 Insider Trading Behaviour and Type I Error

However, to corporate insiders who have a more intimate knowledge of a firm's performance, audit opinions might contain less noise. We base the presumption on research that reveals corporate insiders are more knowledgeable about obtuse firm operations through financial accounting numbers.

For example, Beneish and Vargus (2002) and Hodgson and Praag (2006) show that insiders profitably trade on the accrual/cash ratio, insiders sell to anticipate a break in positive earning strings (Ke et al., 2003), and Aboody and Lev (2000) reveal that R&D contributes to information asymmetry which creates profitable trading opportunities for insiders. To date there are few papers on insider trading as a signal of GCO quality. One by Dhaliwal et al. (2016) reports that insider selling volumes increase at least 2 years prior to a GCO, with the accelerated trading undertaken to avoid litigation (Ke et al., 2003). In contrast, Chen at al. (2013) introduce the "pressure hypothesis", that insiders of distressed firms will pressure auditors not to issue a GCO during periods they undertake substantial selling. Hence, there is a negative association between insider selling and the probability of receiving a GCO.

Hence, we argue that corporate insider trading may provide an incremental signal that the auditor has invoked Type I error which will be quickly reversed. We then have our second hypothesis formed as

> **H2**: After a GCO, firms with a higher net purchase ratio are more likely to receive a GCOW in the subsequent audit report.

3.3 Insider Trading Behaviour and Market Reaction

We note several aspects from the above. Prior literature reports mixed results pertaining to market reaction after a first-time GCO with a theoretical tension around market efficiency. A number of studies (e.g., Fleak and Wilson, 1994; Jones, 1996; Carlson et al., 1998; Taffler, 2004; Kausar et al., 2009; Menon and Williams, 2010) document significant negative market responses over short and long windows after GCO disclosure, suggesting that information in a first time GCO is impounded slowly by the market. Others document insignificant reactions to a supposed bad news GCO report with most or nearly all of the price impact impounded beforehand (Dodd et al., 1984; Blay and Geiger,

2001; Basu, 2004; Herbohn et al., 2007; Myers et al., 2016; Blay et al., 2016).[6] Explanations revolve around rationally derived preconditioned expectations that are gleaned from research activities and/or continuous disclosure regimes that enable prediction of fundamental value (per Ball and Brown, 1968). Such results are consistent with a rich continuous information environment—the market has anticipated the GCOs with a leading negative reaction impounded up to 12 months in advance.

The second issue is related to insider trading research and GCOs. Prior research concentrates on trading metrics and is completely focused on the period before the GCO is issued. We extend this research by focussing on the post GCO period and abnormal stock returns. Specifically, whether the insider trading metrics generate abnormal returns and whether the subsequent GCOW is associated with differential abnormal returns. Consequently, one may plausibly argue that an observation of no abnormal price reaction after GCOs is caused by insider awareness of auditor Type I error, which when pooled with the GCOC firms, reduces their negative impact (Kausar et al., 2009). This leads to the following hypotheses:

> **H2**: After a GCO and prior to a GCOW announcement, a higher insider net purchase ratio has a positive relation with future abnormal returns.
>
> **H3**: After a GCO and prior to a GCOC announcement, the insider net purchase ratio has no relation with future abnormal returns.

[6] For example, Dodd et al. (1984) find significant negative price reactions before a first time GCO, but none afterwards. Similarly, Herbohn et al. (2007) find negative 32% abnormal returns in the 12 months preceding a GCO and none afterwards. Basu (2004) reports that 95% of price declines occur prior to a GCO announcement. Myers et al. (2016) document that GCOs have no significant incremental information value over earnings announcements for a US sample (2004 to 2012), using cumulative abnormal returns CAR (0, +2) days, and abnormal trading volume (0, +2) days. Blay and Geiger (2001) find insignificant abnormal returns for GCOs for eventually bankrupt firms, which is consistent with a higher prior assessed probability of bankruptcy by the market. Finally, Blay et al. (2016) provide evidence that the market fully impounds the incremental information of GCOs.

4 Data and Research Design

4.1 Data

Firms with first-time GCOs over the 1999-2015 period are collected from the Audit Analytics database with a requirement that they have a subsequent audit report available. We then follow the Menon and Williams (2010) manual procedure by confirming correctness of first-time GCOs on the SEC Edgar website. The Compustat database is used to obtain matched annual accounting variables. Finally, insider trading data is obtained from the Thomson Reuter database for all insider purchases and sales which occurred around the first-time GCO. Consistent with Frankel and Li (2004) and Brochet (2010) we keep only insider open market purchases and sales, drop transactions with codes "A" and "P" and delete transactions with trading volume smaller than 100. All insider trades are then aggregated at the firm-quarter level to obtain a net insider purchase ratio (per Ke et al., 2001). The final sample contains first time GCO observations for 37 firms, of which 247 are GCOW firms and 290 are GCO firms that survived and received a GCOC in the next audit report.[7]

4.2 Net Purchase Ratios

To conduct the transaction empirical tests, we first define period Q(1) (Q(-1)) as the first three months after (before) the announcement of the first-time GCO, and then respectively define periods Q(2) (Q(-2)), Q(3) (Q(-3)) and Q(4) (Q(-4)) as the 2nd, 3rd and 4th quarter after (before) the announcement date of the first-time GCO. Dhaliwal et al. (2016) and Chen et al. (2013) use predicted insider trades to infer insider trading behaviour. We diverge by measuring insider trading behaviour using actual real time insider trades to calculate the net purchase ratio.

In order to avoid the impact of the seasonal trend found in insider trading (Ferreira and Ravina, 2010), we proxy insider trading behaviour around the first-time GCO using the change of net purchase

[7] The GCOW ratio in this sample is higher than the initial 32% reported by Kauser et al (2009) as we restrict the firms to have at least one insider transaction in the four years before the first-time GCO and one year after the GCO. If we release the restriction, we obtain a similar GCOW ratio as reported in the Appendix.

ratio (ΔNPR). Following the literature, net purchase ratio (NPR) is defined as the difference between the total volumes of insider purchases and the total volume of sales, scaled by the total insider trading volume in the same quarter. We then measure the change of insider net purchase ratio at quarter X in year t as the difference of the NPR at quarter X in year t and the average NPR at quarter X in the previous four years.

4.3 Baseline Model

For testing whether insiders in GCOW firms are net purchasers with higher NPR and ΔNPRs than those in CGCO firms, we run multivariate regressions with controls from the insider trading literature: natural log of total assets (SIZE) because firm size has a negative correlation with insider trading activity (Seyhun, 1986); book to market ratio (BM) and past year annual stock return (RET) to control for contrarian trading tendencies (Lakonishok et al., 1994; Rozeff and Zaman, 1998; Jenter, 2005); a dummy variable for research and development expenses (R&D) as a measure of firm opaqueness (Aboody and Lev, 2000); and a loss dummy (LOSS), following Huddart and Ke (2007) and Brochet (2010), and the auditing literature: short – long investment securities (INVEST), liabilities/assets (LEV), operating cash flow (OCF), Altman's probability of bankruptcy (ZSCORE), earnings announcement lag (ANNLAG), big 4 auditor (BIG4), indicator variable equal to one if the firm has new equity or debt in the last year (NEWFIN), and natural og of firm age (AGE) per Chen et al. (2013). The base regression model is:

$$\begin{aligned} \text{BHAR} = {} & a_1 + a_2\Delta\text{NPR\_Q(-4)} + a_3\Delta\text{NPR\_Q(-3)} + a_4\Delta\text{NPR\_Q(-2)} + a_5\Delta\text{NPR\_Q(-1)} \\ & + a_6\Delta\text{NPR\_Q(1)} + a_7\Delta\text{NPR\_Q(2)} + a_8\Delta\text{NPR\_Q(3)} + a_9\Delta\text{NPR\_Q(4)} \\ & + a_{10}\text{SIZE} + a_{11}\text{BM} + a_{12}\text{RET} + a_{13}\text{LOSS} + a_{14}\text{R\&D} + a_{15}\text{INVEST} \\ & + a_{16}\text{LEV} + a_{17}\text{OCF} + a_{18}\text{ZSCORE} + a_{19}\text{ANNLAG} + a_{20}\text{BIG4} \\ & + a_{21}\text{NEWFIN} + a_{22}\text{AGE} + \text{Industry FE} + \text{Year FE} + \varepsilon \end{aligned} \quad (1)$$

where ΔNPR_Q(X) is the (-)Xth quarter's change of net purchase ratio; Industry FE and Year FE are industry and year fixed effects. If GCOW is good news and insiders trade on the information, we

expect the market will response to those companies with a higher ΔNPR after first time GCOs, and therefore we expect that the coefficients for a_6, a_7, a_8 and a_9 should be significantly positive

5. Results

5.1 Descriptive Statistics and Market Returns

Table 1 provides descriptive statistics of the sample split into GCOC and GCOW for the year prior to the GCO. All continuous independent variables are winsorized at the 1st percentile on both tails of the distribution. All firms had poor financial performance over the year prior to their first-time GCOs, as reflected in their negative annual returns (RET), net income (LOSS) and operating cash flows (OCF). The two groups have similar firm characteristics in most aspects. The only significant difference is that GCOW firms are significantly larger than GCOC firms (4.579 vs 3.997), have a lower negative OCF (-0.303 vs -0.411), a greater level of FIN_ISS (0.50 vs 0.387), and a slightly higher reporting lag for financial reports. The other firm characteristics are not significantly different. In short, there are no strong financial and operating indicators that would alert outside investors or analysts to anticipate which firm will receive a GCOC or GCOW in the subsequent year.

INSERT TABLE 1 ABOUT HERE

We now turn to market returns to trace impact after the GCO announcement. Figure 1 plots the market adjusted buy-and-hold abnormal pooled returns and when decomposed into GCOW and GCOC returns. Two aspects are notable. Returns for the pooled GCO announcements are consistently negative for most of the post announcement year but after the subsequent one year lagged audit report they become insignificant. The statistical significance of this one year inter-temporal price evolution can be observed in table 2 where returns are significantly negative until they turn insignificant at trading day 240. In this sense, we could argue that a GCO contains incremental

negative information for the market, but only in the short term with price mean reversion over the longer term.

However when we decompose into GCOW and GCOC at the subsequent one year audit re-evaluation we observe very difference price evolutions between the two sub-samples. After GCO announcement, there are slightly negative returns for GCOWs for the next 30 days, followed by a slow positive increase, and then a positive acceleration from 180 trading days out. For GCOC firms there is a continuing negative return decline. The differential price impact is statistically confirmed by t-tests in table 2 panel A. Table 2 panel B reports regression results which control for firm and market specific factors. GCOW has a significantly higher positive post GCO announcement return compared to firms who subsequently receive a GCOC. Of note, however, is that these returns do not significantly deviate before 30 days after the GCO and prior studies who analysed short term market reaction (implicitly assuming market efficiency), in the main do not report longer term adjustments. Further, none of the control variables were consistently significant with the exception of LEV in the short term.

Three interpretations arise. First, an observation that GCO opinions have no long run price impact is dominated by pooled data that includes auditors' Type I error. Second, confirmatory announcements by external auditors have substantial negative market impact for GCOC firms but not for GCOW firms. Third, there are few clues available to outside investors that would immediately alert them to auditor Type I error.

INSERT FIGURE 1 & TABLE 2 ABOUT HERE

The question then is why the returns deviate, and what factors contribute to the price deviations? To explore possible answers, we extend the analyses to the trading behaviour of corporate insiders and the subsequent returns from their trading.

5.2 Insider Trading Behaviour after GCO announcement

Following Chen et al. (2013) and Dhaliwal et al. (2016) we analyse pre and post insider trading volumes but additional add the association with returns. Table 3 presents regression results from an analysis of the association between the quarterly lagged and leading ΔNPR around the first-time GCO, and subsequent abnormal returns. If corporate insider trading is informative we expect a positive association with abnormal returns. Panel A shows that increased insider purchases in the quarter immediately following the GCO (ΔNPR_Q1) results in significant long term returns. This is also the case for ΔNPR_Q3 during the period of accelerated price increases for GCOW firms. Hence, insider purchases provide both a predictive and a confirmatory signal of a subsequent GCOW.

INSERT FIGURE 2 & TABLE 3 ABOUT HERE

The comparable timing of corporate insider transactions for GCOC firms is reported in panel B. There is no consistent and significant relationship between insider trading volumes and abnormal returns. Univariate results confirm the net purchase ratios are higher for GCOW firms in all quarters following the GCO announcement. In particular, the deviation from GCOC firms is the highest directly after the GCO announcement indicating greater confidence in GCOW future performance.

In Table 4 we report insider trading as a factor related to the cited reason. We use FIN_ISS, problems with raising finance, as a cited variable that has been previously diagnosed as an indicator of an extreme reason for declaring a GCO. Our counter logic is that if firms are conservatively labelled as a GCO then this factor would not be as problematic for the firm. Given outside investors view this as a negative and noisy signal the probability is that the market will over-react and create possible arbitrage opportunities for insiders. Our prediction is that purchase trading volume will increase in the time period directly after the release of the cited factor, but only for GCOC firms. Consistent

with predictions, panel A confirms a significant positive relationship for GCOW firms and no significant increase in purchase activity for GCOC firms in panel B.

5.3 Insider Trading Behaviour and Market Reaction

Following Chen et al. (2013) and Dhaliwal et al. (2016), we analyse pre and post insider ΔNPR but additionally add the association with returns. Table 4 displays regression results from an analysis of the association between the quarterly lagged and leading ΔNPR around the first time GCO, and subsequent abnormal returns. If corporate insider trading is informative we expect a positive association with abnormal returns. Panel A shows that increased insider purchases in the quarter immediately following the GCO (ΔNPR_Q1) results in significant long term returns. This is also the case for ΔNPR _Q3 during the period of accelerated price increases for GCOW firms. Hence, insider purchases provide both a predictive and a confirmatory signal of a subsequent GCOW.

INSERT TABLE 4 ABOUT HERE

The comparable timing of corporate insider transactions for GCOC firms is reported in panel B. There is no consistent and significant relationship between insider trading volumes and abnormal returns. Univariate results confirm the net purchase ratios are higher for GCOW firms in all quarters following the GCO announcement. In particular, the deviation from GCOC firms is the highest directly after the GCO announcement indicating greater confidence in GCOW future performance.

6 Robust Test and Additional Analysis

6.1 Propensity Score Matching

Instead of having Type I error and a subsequent GCOW stimulating insiders to extract information rents, an alternative explanation for the results is that GCOW firms in the sample have distinguishing

features driving trading behaviours. For instance, GCOW firms may have a reduced leverage ratio, a new issuance of debt or equity contract, or a better return on equity which is recognized by insiders as good news. Therefore, insiders may be trading on improved financial or accounting indices, instead of trading on GCOW information.

To test for robustness, propensity score matching is used to match firms in the sample that receive a GCOW to firms that do not receive a GCOW based on proxies for the level of insider trading intensity. Following the method of Zmijewski (1984) and DeFond et al., (2002), the probability of receiving a GCO opinion is reported in Table 5. Panel B of Table 5 shows that all variables are not statistically different between GCOW and CGCO firms after propensity score matching, indicating that the matching process is effective and there is no bias. Results regarding market reaction and insider trading behaviour in Panel C is qualitatively the same as the results found before.

INSERT TABLE 5 ABOUT HERE

6.2 Routine Trades

Acknowledging the fact that not all insider trading is motivated by a desire to exploit information asymmetries, Cohen et al. (2012) suggest that some transactions by insiders are routine, driven by liquidity or portfolio rebalancing reasons. Thus, the results may be explained by the fact that insiders in GCOW firms are net purchasers for portfolio rebalancing. We follow the algorithm suggested by Cohen et al. (2012) and remove potential routine transactions. In the untablet results, we consistently find insiders buy more often in quarter 1 after FGCO.

6.3 Insider Trading Behaviour and Cited Reason

If there is a determination of substantial doubt about the company's ability to continue as a going concern, then the auditor must identify the pertinent conditions giving rise to that assessment (PCAOB 2015a). Menon and Williams (2010) classify GCOs that are having trouble obtaining financing as a severe reason for a GCO, and report greater relative negative stock price reaction. More

recently, Chen et al. (2015) document that firms who have multiple problems (e.g., financing difficulties, operating difficulties, and others) subsequently leads to tighter loan contract conditions (e.g., interest rate, maturity, number and type of loan covenants) and higher financial stress. Their results highlight the informative value contained in different GCO reasons and provide empirical evidence on the price impact beyond a simple binary decision to modify their report.

On the other hand if a subsequent GCOW firm is mooted as having financial difficulties, but is in a stronger position to gain external finance than perceived by the market, then the market may well price-overreact. Insiders then increase their trading to take advantage of mispricing as contrarian traders (Lakonshok and Lee, 2001). In short, insiders have greater awareness of the severity of the first-time GCO, they are more likely to be relative higher net buyers of GCOW firms with audit cited financing problems.

INSERT TABLE 6 ABOUT HERE

In Table 6 we report insider trading as a factor related to the cited reason. We use FIN_ISS, problems with raising finance, as a cited variable that has been previously diagnosed as an indicator of an extreme reason for declaring a GCO. Our counter logic is that if firms are conservatively labelled as a GCO then this factor would not be as problematic for the firm. Given outside investors view this as a negative and noisy signal the probability is that the market will over-react and create possible arbitrage opportunities for insiders. Our prediction is that purchase trading volume will increase in the time period directly after the release of the cited factor, but only for GCOC firms. Consistent with predictions, panel A confirms a significant positive relationship for GCOW firms and no significant increase in purchase activity for GCOC firms in panel B.

6.4 Information Sharing

Seyhun (1986) suggests an "information hierarchy" hypothesis based on the conjecture that an insider's position in the firm affects their access to information. Prices are most responsive to the

trades of CEOs, CFOs, COOs and less responsive to non-executive directors. Lakonishok and Lee (2001) provide an updated study on information hierarchy and show that directors and officers (defined as managers) have significantly higher trading profits and Ravina and Sapenzia (2010) report that executive directors derive more trading profits than independent directors. However, Alldredge and Blank (2016) note that insiders tend to trade together in "cascades" that replicate senior executives and report that only those insiders who trade together with top managers earn significantly higher abnormal returns.

We follow prior literature and decompose corporate insiders into three groups according to their proported information hierarchy as defined in the Thomson Reuter database. The first group is top managers (CEOs, CFOs, COOs, presidents, general counsels and chairs of board). The second tier consists of non-executive and independent directors mainly responsible for no strategic and board monitoring activities. The third tier consists of corporate officers and administrators.

As discussed, the issuance of an audit report needs communication between auditors and managers so that the first few insiders knowing the result of the audit report should be the top managers. Meanwhile, although other directors and officers have limited access to the audit report, they have incentives to extract relevant information. That is because good and bad audit reports have a direct economic impact on firm personnel and stock performance—the incentives to extract private information become stronger as the prospect of personal wealth and job security decline. Hence, consistent with the research of Alldredge and Blank (2016) and Han and Yang (2013), we expect a greater degree of herding and network information sharing in firms under audit stress.

Table 7 reports insider size adjusted BHARs after first time GCO announcements. Panel A reports results from insider purchases with column one representing the accumulated time period. Column two shows that, in aggregate, insider purchases for eventual GCOW firms is profitable rising to a 24.5% return over 180 days. Columns 3 to 5 provide a comparison between corporate insider

hierarchy grouped as top managers (executives), other directors and officers. In a dictator type corporate governance it would be expected that senior managers would dominate access to private information and profitability extraction. This is not the case here were all corporate insiders derive similar returns consistent with the equally informed findings of Ravina and Sapienza (2009) and networking and information sharing of Alldredge and Blank (2016). For example after 60 days top managers (14.8%), directors (14.9%) and officers (13.4%). For insider selling on GCOWs, returns are lower and negative (loss avoidance) but concentrated in directors who mainly constitute independent outside directors. There are two explanations. The selling of top managers (managers) contains significant amounts of liquidity and diversification trades (Lakonishok and Lee, 2001) and/or are sensitive to possible litigation from selling on private information. In terms of arbitrage, replication of all insider trades in post GCO for GCOW firms, provides a 25.6% return over 60 days.

For GCOC firms insider buying and selling provides significantly lower returns with an purchases returning a 60 day negative profit of -3.9% and sales a loss avoidance of 4.7%, an overall arbitrage return of 0.8%. Hence, we interpret that insider trading in GCOW firms contains a higher level of private information. As a final arbitrage, if we replicate all insider trades the 60 day return is 26.6%.

INSERT TABLE 7 ABOUT HERE

In Table 8, we also reports whether insiders in different levels will trade together or follow insiders in the upper level when facing FGCO. The logit regressions show that insiders will only follow other insiders from the same level. For instance, directors will only trade after other directors traded.

7 Conclusion

In this paper we investigate whether corporate insiders are aware of extreme Type I audit error in the form of a subsequent going concern opinion withdrawal (GCOW). We report that a significant proportion of first time going concern audit opinions (GCOs) that survive the first year are reversed

by a GCOW at the following audit report year. Separately analysing subgroups of GCOC and GCOW firms yields results with significant negative returns after GCO announcement for firms that subsequently receive a continuing going concern opinion (GCOC) and positive returns for GCOWs. We conjecture and affirm that the anticipatory trading of corporate insiders, with asymmetric private information, drives the positive GCOW returns. Further, insider purchases in GCOW firms is associated with financial problems documented by auditors and positively associated with herding by all insiders. In particular, replicating all the transactions of corporate insiders in GCOW (all) firms and setting arbitrage hedge portfolios return an average abnormal returns of 25.6% (26.4%) over 60 days. For less senior executives the same hedge returns an average abnormal returns of 16.25%. Whilst not all insiders are knowledgeable, the hedge returns for blockholders is only 2.62%.

Our results inform investors of the economic consequences of Type I audit report error and offer an explanation as to why prior studies, that do not separate GCOWs from GCOCs, provide conflicting post GCO abnormal returns.

References

Aboody, D., and Lev, B. (2000). Information asymmetry, R&D, and insider gains. *Journal of Finance*, 55(6), 2747-2766.

Alldredge, M. D., and Blank, B. D. (2016). Insider herding. SSRN Working Paper.

American Institute of Certified Public Accountants (AICPA). 1974. *Reports on Audited Financial Statements.* Statement on Auditing Standards (SAS) No. 2. New York, NY: AICPA.

American Institute of Certified Public Accountants (AICPA). 1981. The Auditor's Considerations When a Question Arises About an Entity's Continued Existence. Statement on Auditing Standards (SAS) No. 34. New York, NY: AICPA.

American Institute of Certified Public Accountants (AICPA) (1988) Statement on Auditing Standard No. 59: The auditor's consideration of an entity's ability to continue as a going concern. AICPA.

Ball, R. and P. Brown. 1968. An Empirical Evaluation of Accounting Income Numbers. Journal of Accounting Research 6(2): 159-178.

Basu, S. 2004. What do we learn from two new accounting based stock market anomalies? *Journal of Accounting and Economics* 38: 333-348.

Beneish, M. D. and M. E. Vargus. 2002. Insider Trading, Earnings Quality, and Accrual Mispricing Author(s): Source: The Accounting Review 77(4), 755-791.

Bessell, M., A. Anandarajan & A. Umar (2003). Information content, audit reports and going concern: an Australian study. *Accounting and Finance* 43(3), 261–282.

Blay, Allen D. and Bryan, David and Reynolds, J. Kenneth, The Going-Concern Market Anomaly Revisited (March 14, 2016). Available at SSRN: https://ssrn.com/abstract=2747774

Blankespoor, E, E. deHaan, J. Wertz, and C. Zhu. 2017. Why do individual investors disregard accounting information? The roles of information awareness and acquisition costs. Working Paper. SSRN.

Blay, A. D., and M. A. Geiger. 2001. Market expectations for first-time going concern recipients. *Journal of Accounting, Auditing & Finance* 16 (Summer): 209-226.Blay, A. D., M. A. Geiger and D. S. North. 2011. The Auditor's Going-Concern Opinion as a Communication of Risk. *Auditing: A Journal of Practice & Theory* 30 (2): 77-102.

Brochet, F. (2010). Information content of insider trades before and after the Sarbanes– Oxley Act. *The Accounting Review*, 85 (2), 419–446.

Carcello, J. V., and T. L. Neal. (2003). Audit committee characteristics and auditor dismissals following "new" going-concern reports. *The Accounting Review*, 78 (1), 95–117.

Carcello, J., and Neal, T. (2000). Audit committee composition and auditor reporting. *The Accounting Review*, 75(4), 453-67.

Carlson, S. J., Glezen, G. W., and Benefield, M. E. (1998). An investigation of investor reaction to the information content of a going concern audit report while controlling for concurrent financial statement disclosures. *Quarterly Journal of Business and Economics*, 37(3), 25-39.

Carson, E., N. L. Fargher, M. A. Geiger, C. S. Lennox, K. Raghunandan, and M. Willekens. 2013. Audit Reporting for Going-Concern Uncertainty: A Research Synthesis. *Auditing: A Journal of Practice & Theory* 32 (Supplement 1): 353–384.

Carson, E., Fargher, N. L. and Y. Zhang, Y. (2018). Explaining auditors' propensity to issue going-concern opinions in Australia after the global financial crisis, *Accounting and Finance*, 1-39, doi: 10.1111/acfi.12313

Chen, K. C. W., & Church, B. K. (1996). Going-concern opinions and the market's reaction to bankruptcy filings. *The Accounting Review*, 71, 117-128.

Chen, C., Martin, X., and Wang, X. (2013). Insider trading, litigation concerns, and auditor going-concern opinions. *The Accounting Review*, 88 (2), 365–393.

Chen, F. P., He, S., Ma, Z., and Stice, D. (2016). The information role of audit opinions in debt contracting. *Journal of Accounting and Economics*, 61(1), 121-144.

Choi, S. and Jeter, D. 1992. The effects if qualified audit opinions on earnings response coefficients, Journal of Accounting and Economics, Vol. 15 No. 2, pp. 229-47.

Citron, D. B., Taffler, R. J., and Uang, J. (2008). Delays in reporting price-sensitive information: The case of going concern. *Journal of Accounting and Public Policy*, 27(1), 19-37.

Cohen, L., Malloy, C., and Pomorski, L. (2012). Decoding Inside Information. *Journal of Finance, 67*(3), 1009-1043.

DeFond, M. L., K. Raghunandan, and K. R. Subramanyam. 2002. Do Non-Audit Service Fees Impair Auditor Independence? Evidence from Going Concern Audit Opinions. *Journal of Accounting Research* 40 (4): 1247–1274.

DeFond, M., and Zhang, J. (2014). A review of archival auditing research. *Journal of Accounting and Economics*, 58 (2), 275-326.

Deng, M., Dana, T., and Ye, M. (2014). Do Joint Audits Improve or Impair Audit Quality? *Journal of Accounting Research*, *52* (5), 1029-1060.

Dhaliwal, D., Hallman, K. K., and Pereira, R. (2016). Insider trading and going concern opinions: A re-examination. *Working Paper,* University of Texas at Austin and University of Missouri-Columbia.

Dodd, P., Dopuch, N., Holthausen, R., AND Leftwich, R. (1984). Qualified audit opinions and stock prices. *Journal of Accounting and Economics*, 6(1), 3–38.

Dopuch, N., R. W. Holthausen, and R. W. Leftwich. 1987. Predicting audit qualifications with financial and market variables. *The Accounting Review* 62 (3): 431–454.

Elliott, J. A. (1982). Subject to" audit opinions and abnormal security returns—Outcomes and ambiguities. *Journal of Accounting Research*, 20(2), 617–638.
Fargher, N. and Wilkins, M. (1998), Evidence on risk changes around audit qualification and qualification withdrawal announcements, *Journal of Business Finance & Accounting* 25(7/8): 829-847.

Fields, L. and Wilkins, M. (1991), The information content of withdrawn audit qualifications: new evidence on the value of 'subject-to' opinions, *Auditing: A Journal of Practice and Theory* 10(2): 62-69.

Financial Accounting Standards Board (FASB). 2014. *Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern*.

Fleak, S. K., and Wilson, E. R. (1994). The incremental information of the going-concern audit opinion. *Journal of Accounting, Auditing and Finance*, 9(1), 149-166.

Foster B., Ward, T., and Woodroof, J. (1998). An analysis of the usefulness of debt defaults and going concern opinions in bankruptcy risk assessment. *Journal of Accounting, Auditing and Finance*, 13 (3), 351-371.

Francis, J.R. and Krishnan J. (2002). Evidence on auditor risk-management strategies before and after The Private Securities Litigation Reform Act of 1995. *Asia Pacific Journal of Accounting & Economics*, 9(2), 135-157.

Frankel, R., and Li, X. (2004). Characteristics of a firm's information environment and the information asymmetry between insiders and outsiders. *Journal of Accounting and Economics*, *37*(2), 229-259.

Geiger, M. A. and A. Kumas. Institutional Investor Trading Surrounding Auditor Going Concern Opinions (January 11, 2016). Available at SSRN: https://ssrn.com/abstract=2796821

Geiger, M. A., and Rama, D. V. (2003). Audit fees, non-audit fees, and auditor reporting on stressed companies. *Auditing: A Journal of Practice and Theory*, 22(2), 53-69.

Geiger, M. A., and Rama, D. V. (2006). Auditing firm size and going-concern reporting accuracy. *Accounting Horizons*, 20(1), 1-17.

Herbohn, K., Ragunathan, V. and Garsden, R. (2007), The horse has bolted: revisiting the market reaction to going concern modifications of audit reports, *Accounting and Finance*, 47, 473-93.

Hodgson, A. and B. van Praag. 2006. Information trading by corporate insiders on accounting accruals. *Accounting and Finance* 46: 819-842.

Holder-Webb, L. M., and M. S. Wilkins. 2000. The incremental information content of SAS No. 59 going concern opinions. Journal of Accounting Research 38 (1): 209–219.

Hopwood, W.S., J.C. McKeown, and J. F. Mutchler. 1989. A Test of the Incremental Explanatory Power of Opinions Qualified for Consistency and Uncertainty. *The Accounting Review* 64(1): 28-48.

Hopwood, W., J. C. McKeown, and J. F. Mutchler. 1994. A reexamination of auditors versus model accuracy within the context of the going-concern opinion decision. Contemporary Accounting Research 10 (2): 409–431.

Huddart, S., B. Ke. 2007. Information asymmetry and cross-sectional variation in insider trading. *Contemporary Accounting Research* 24(1) 195-232.

Ittonen, K. 2012. Market Reactions to Qualified Audit Reports: Research Approaches. *Accounting Research Journal* 25(1): 8-24.

Jenter, D. (2005). Market Timing and Managerial Portfolio Decisions. *Journal of Finance*, *60*(4), 1903-1949.

Jones, F. L. (1996). The information content of the auditor's going concern evaluation. *Journal of Accounting and Public Policy,* 15(1), 1-27.

Kaplan, S. E., Mowchan, M., and Weisbrod, E. (2014). Does institutional investor behavior influence the market reaction to going concern audit reports? SSRN Working Paper.

Kausar, A., Kumar, A., and Taffler, R. (2013). Why the Going-Concern Anomaly: Gambling in the Market? SSRN Working Paper.

Kausar, A., Taffler, R. J., and Tan, C. (2009). The going concern market anomaly, *Journal of Accounting Research,* 47 (1), 213-239.

Ke, B., Huddart, S., and Petroni, K. (2003). What insiders know about future earnings and how they use it: Evidence from insider trades. *Journal of Accounting and Economics*, *35*(3), 315-346.

Lakonishok, J., and Lee, I. (2001). Are insider trades informative? *Review of Financial Studies*,14(1), 79-111.

Lakonishok, J., A. Shleifer, and R. W. Vishny, 1994, Contrarian investment, extrapolation, and risk, *Journal of Finance* 49 (5), 1541–1578.

Lennox, C. (1999). Identifying failing companies: a re-evaluation of the Logit, Probit and DA approaches, *Journal of Economics and Business*, 5(4), 347-346.

Loudder, M. L., Khurana, I. K., Sawyers, R. B., Cordery, C., Johnson,C., Lowe, J., and Wunderle, R. (1992). The information content of audit qualifications. *Auditing: A Journal of Practice and Theory*, 11, 69-82.

Menon, K., and Williams, D. D. (2010). Investor reaction to going concern audit reports. *The Accounting Review,* 85(6), 2075-2105.

Mutchler, J. (1984), Auditor's perceptions of the going-concern opinion decision, *Auditing: A Journal of Practice and Theory* 3(2): 17-30.

Mutchler, J. (1985), A multivariate analysis of the auditor's going-concern opinion decision, *Journal of Accounting Research* 23(2) 668-82.

Myers, L. A., Shipman, J. E., Swanquist, Q. T., and Whited, R. L. (2016). Measuring the market response to first-time going concern modifications: The importance of disclosure timing. Working Paper, University of Tennessee, Knoxville.

Nogler, G. E. 1995. The resolution of auditor going concern opinions. Auditing: A Journal of Practice & Theory 14(2): 54-73.

Ogneva, M., and K. R. Subramanyam. 2007. Does the stock market underreact to going concern opinions? Evidence from the U.S. and Australia. Journal of Accounting & Economics 43 (2/3): 439–452.

Palmrose, Z., 2000, *Empirical Research in Auditor Litigation: Considerations and Data, Studies in Accounting Research #33* (Sarasota, FL: American Accounting Association).

Pheixinho, R., and Taffler, R. (2014). Do analysts know but not tell? The case of going concern opinions. SSRN Working Paper.

Piotroski, J. D. and D. T. Roulstone. 2005. Do insider trades reflect both contrarian beliefs and superior knowledge about future cash flow realizations? *Journal of Accounting and Economics* 39(1): 55-81.

Public Company Accounting Oversight Board (PCAOB). 2015a. AU Section 341, *The Auditor's Consideration of an Entity's Ability to Continue as a Going Concern*. Available at: http://pcaobus.org/Standards/Auditing/Pages/AU341.aspx.

Public Company Accounting Oversight Board (PCAOB). 2015b. AU Section 508 Reports on Audited Financial Statements. Available at: http://pcaobus.org/Standards/Auditing/Pages/AU508.aspx#ps-pcaob_418b53b3-ddc8-4c40-be3c-48a9732b202b

Raghunandan, K., and D. V. Rama. 1995. Audit reports for companies in financial distress: Before and after SAS No. 59. *Auditing: A Journal of Practice & Theory* 14 (1): 50–63.

Ravina, E., and Sapienza, P. (2010). What do independent directors know? Evidence from their trading. *The Review of Financial Studies*, *23*(3), 962-1003.

Rozeff, M., and Zaman, M. (1998). Overreaction and insider trading: evidence from growth and value portfolios. *Journal of Finance*, 53(2), 701-716.

Ryan, S. G., Tucker, J. W., and Zhou. Y. (2016). Securitization and Insider Trading. *The Accounting Review*, 91(2), 649-675.

Seyhun, H. N. (1986). Insiders' profits, costs of trading, and market efficiency. *Journal of Financial Economics*, 16(2), 189-212.

Sloan, R. G. (1996). Do stock prices fully reflect information in accruals and cash flows about future earnings? *The Accounting Review*, 71(3), 289-315.

Stanley J., DeZoort F. T., Taylor G. (2009),"The association between insider trading surrounding going concern audit opinions and future bankruptcy", *Managerial Auditing Journal*. 24(3): 290-312.

Taffler, R. J., Lu, J., and Kausar, A. (2004). In denial? Stock market underreaction to going-concern audit report disclosures. *Journal of Accounting and Economics,* 38 (1-3), 263-296.

Thoman, L. (1996). Legal damages and auditor efforts. *Contemporary Accounting Research*, 13(1), 275–306.

Zmijewski, M. E. 1984. Methodological Issues Related to the Estimation of Financial Distress Prediction Models. *Journal of Accounting Research* 22: 59-82.

Figure 1: Market Price Reaction around First-Time GCOs

This figure displays market reactions afer first-time GCOs for going concern opinion withdrawal (GCOW) and going concern opinion conctinuing (GCOC) firms, respectively. Market reactions are measured as the size adjusted abnormal returns (BHAR) per Ravina and Saphenza (2010).

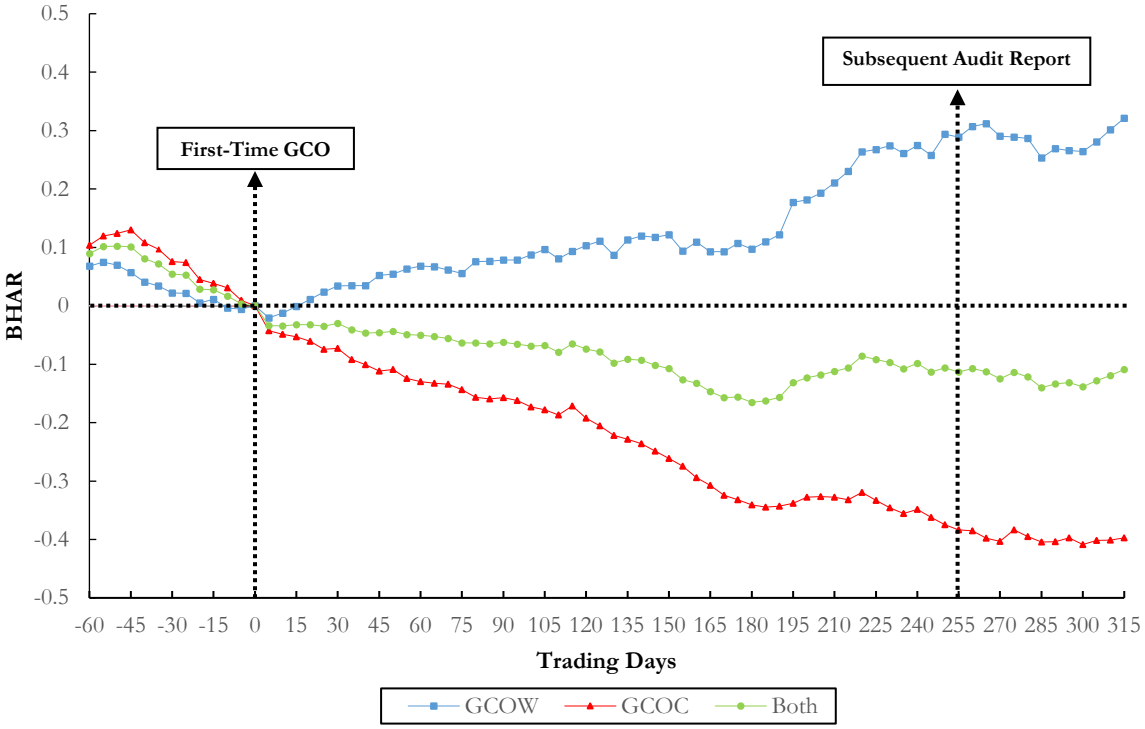

Figure 2: Average Change in Net Insider Purchase Ratios around the 10-K Filing Date

This figure compares insider trading behaviour in CGOW and GCOC firms during the 4 quarters prior and post to the announcement of the first-time GCO. Insider trading behaviour is proxied by the change in net purchase ratio (ΔNPR). NPR is the buy and sell share inbalance measured as the total number of shares bought minus the total number of shares sold deflated by the total number of shares traded in the firm during the quarter.

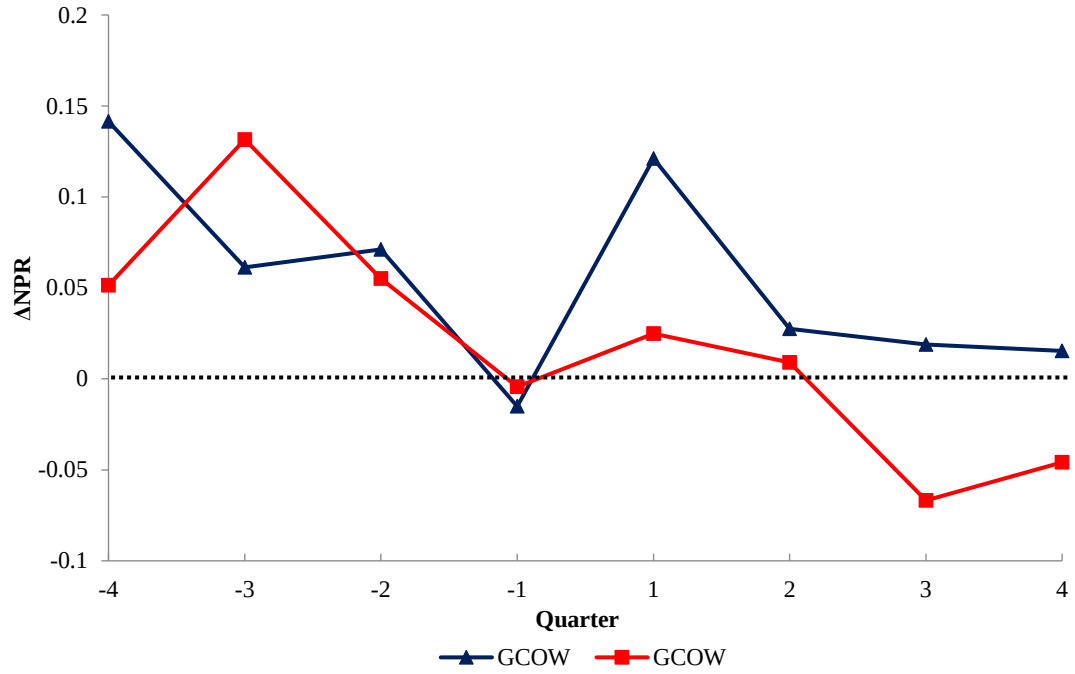

Table 1: Descriptive Statistics

This table reports firm performance of the sample at the fiscal year when receiving the first-time GCO for the period from 1999-2015. SIZE is the natural log value of total assets; BM is book to market ratio; RET is annual stock return; LOSS is an indicate variable equal to 1 if the net income is negative, otherwise 0; R&D is an indicator variable equal to 1 if the R&D expenditure is greater than 0, otherwise 0; INVEST is long and short-term investments scaled by total assets; LEV is total liabilities to total assets ratio; OCF is operating cash flow scaled by total assets; ZSCORE is a measure of probability of bankruptcy based on Zmijewski (1994) model; ANNLAG is the natural log value of the difference between earnings announcement date and the corresponding fiscal year end date; BIG4 is an indicator variable equal to 1 if the firm's auditor is the big 4, otherwise 0; NEWFIN is an indicator variable equal to 1 if the firm has a new issuance of debt or equity during the current fiscal year, 0 otherwise. AGE is the natural logarithm of the number of years the firm recorded in the Compustat database plus 1. TOT_ISS is the total number of cited issues for a going concern opinion. FIN_ISS is an indicator variable equal to 1 if the audit going concern opinion cites at least one financing issue, 0 otherwise. SEV_ISS is an indicator variable equal to 1 if the audit going concern opinion cites poor financial performance, operating and financing issues at the same time, 0 otherwise.

Panel A: Descriptive Statistics

	GCOW Firms [N = 247]					GCOC Firms [N = 290]					Diff.
	Mean	Median	Std. Dev.	p25	p75	Mean	Median	Std. Dev.	p25	p75	(*t*-test)
SIZE	4.579	4.185	1.954	3.081	5.908	3.997	3.619	1.759	2.721	4.828	**0.582*** **
BM	0.821	0.608	2.453	0.070	1.370	0.899	0.462	1.948	0.157	1.261	-0.078
RET	-0.281	-0.517	0.836	-0.767	-0.082	-0.192	-0.500	1.082	-0.755	-0.127	-0.089
LOSS	0.927	1	0.260	1	1	0.950	1	0.218	1	1	-0.023
R&D	0.517	1	0.501	0	1	0.598	1	0.491	0	1	-0.081
INVEST	0.212	0.092	0.264	0.026	0.303	0.242	0.110	0.280	0.037	0.387	-0.030
LEV	0.718	0.657	0.475	0.417	0.912	0.658	0.617	0.428	0.371	0.848	0.060
OCF	-0.303	-0.043	0.574	-0.491	0.036	-0.411	-0.189	0.617	-0.650	-0.002	**0.108** **
ZSCORE	2.683	1.320	4.848	-0.353	4.405	2.636	1.265	4.747	-0.102	4.075	0.047
ANNLAG	4.312	4.369	0.435	4.094	4.522	4.348	4.477	0.376	4.190	4.533	-0.036
BIG4	0.621	1	0.486	0	1	0.631	1	0.483	0	1	-0.010
NEWFIN	0.648	1	0.479	0	1	0.718	1	0.451	0	1	**-0.070***
AGE	2.141	2.197	0.54	1.792	2.565	2.144	2.197	0.533	1.792	2.485	-0.003
TOT_ISS	2.476	2	1.220	2	3	2.452	2	1.131	2	3	0.024
FIN_ISS	0.500	0.500	0.501	0	1	0.387	0	0.488	0	1	**0.113*** **
SEV_ISS	0	0	0	0	0	0.003	0	0.059	0	0	-0.003

Panel B: Sample Firms Distribution by Industry and Year

Industry	**# of Firms**	**Year**	**# of Firms**
Consumer, Retail and Services	60	1999	37
Healthcare, Medical Equipment, and Drugs	140	2000	74
Manufacturing	53	2001	69
Energy	22	2002	59
Chemicals and Allied Products	12	2003	22
Business Equipment	101	2004	21
Utilities, Telephone and Television Transmission	20	2005	27
Finance	54	2006	23
Other (Mines, Construction, Transport, Hotels, Entertainment)	75	2007	22
		2008	48
		2009	33
		2010	13
Total Firms	537	2011	10
		2012	22
		2013	14
		2014	10
		2015	33

Table 2: Market Reaction for GCOW and GCOC Firms

This table reports average buy-and-hold abnormal returns (BHAR) for going concern opinion withdrawal (GCOW) and going concern opinion conctinuing (GCOC) firms, respectively. The market reaction is measured as the size adjusted buy-and-hold abnormal returns (BHAR), starting from the date when the firm received the first-time GCO. Panel A is an event study that exams market reaction after first time GCOs. Panel B reports results based on regression analysis. Type I Error is a dummy variable equal to 1 if the firm received a GCOW after the first-time GCO, otherwise 0. * p<0.1, ** p<0.05, *** p<0.01 indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Average Market Reaction after First Time GCOs

	Pool	**GCOW**	**GCOC**	**Diff. (*t*-test)**
BHAR[0,5]	-0.034***	-0.024***	-0.042***	0.018
BHAR[0,10]	-0.033***	-0.019*	-0.044***	0.025*
BHAR[0,30]	-0.031**	0.025	-0.079***	0.104***
BHAR[0,60]	-0.038**	0.066**	-0.127***	0.193***
BHAR[0,90]	-0.076***	0.067**	-0.198***	0.265***
BHAR[0,120]	-0.086***	0.084**	-0.230***	0.314***
BHAR[0,180]	-0.145***	0.099*	-0.354***	0.453***
BHAR[0,240]	-0.060	0.287***	-0.356***	0.643***
BHAR[0,255]	-0.071	0.298***	-0.384***	0.682***
BHAR[0,300]	-0.102**	0.260***	-0.411***	0.671***

Panel B: Regression Analysis of Market Reaction (Market Adjusted BHAR)

	(1)	(2)	(3)	(4)	(5)	(6)
	Short-Term			Long-Term		
	BHAR5	BHAR60	BHAR120	BHAR180	BHAR240	BHAR300
Type I Error	0.020	0.092***	0.182***	0.425***	0.617***	0.640***
	(1.64)	(3.72)	(5.16)	(7.18)	(5.92)	(6.69)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
N	537	537	537	537	537	537
R^2	0.071	0.107	0.146	0.228	0.201	0.238

Table 3 Insider Trading Behaviour and Likelihood of Type I Error

This table reports the logit regression results for the relationship between insider net purchase ratio and the likelihood of receiving GCOW in the subsequent period after FGCO. ΔNPV_Q(X) is the change of insider net purchase ratio (NPR) at the Xth quarter after FGCO, measured as the difference of NPR at the Xth during the year after (before if X is negative) receiving FGCO and the average NPR at Xth quarter in the previous four years. NPR is defined as the difference between the total volumes of insider purchases and the total volume of sales, scaled by the total insider trading volume in the same quarter. * p<0.1, ** p<0.05, *** p<0.01 indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)
	Logit(Type I Error=1)	Logit(Type I Error=1)	Logit(Type I Error=1)
ΔNPV_Q(-4)	**0.393****		0.102
	(2.23)		(1.11)
ΔNPV_Q(-3)	-0.306		-0.347
	(-1.61)		(-1.57)
ΔNPV_Q(-2)	0.054		-0.012
	(0.30)		(-0.06)
ΔNPV_Q(-1)	-0.157		-0.292
	(-0.75)		(-1.35)
ΔNPV_Q1		**0.515*****	**0.546*****
		(2.72)	**(2.82)**
ΔNPV_Q2		0.028	0.070
		(0.14)	(0.34)
ΔNPV_Q3		-0.038	-0.046
		(-0.20)	(-0.23)
ΔNPV_Q4		0.339	0.417
		(1.38)	(1.63)
Intercept	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
N	537	537	537
R^2	0.130	0.134	0.147

Table 4: Market Reaction for GCOW and GCOC Firms Conditioned by Insider Trading

This table reports market reaction conditioned on insider trading intensity. Panel A and Panel B are for GCOW and GCOC Firms, respectively. The market reaction is proxied by size adusted buy-and-hold abnormal returns (BHARs), starting from the date when the firm received the FGCO. Net purchase ratio (NPR) is the difference between the total volumes of insider purchases and the total volume of sales, scaled by the total insider trading volume in the same quarter. ΔNPV_Q(X) is the difference of NPR at the Xth in the year after (before if X is negative) receiving FGCO and the average NPR at Xth quarter in the previous four years. * p<0.1, ** p<0.05, *** p<0.01 indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: GCOW Firms

	(1)	(2)	(3)	(4)	(5)	(6)
	Short-Term			Long-Term		
	BHAR5	BHAR60	BHAR120	BHAR180	BHAR240	BHAR300
ΔNPR_Q(-4)	-0.004	0.018	0.054	0.039	0.039	0.122
	(-0.23)	(0.38)	(0.93)	(0.47)	(0.26)	(0.87)
ΔNPR_Q(-3)	0.005	-0.082	-0.061	-0.027	0.086	-0.080
	(0.31)	(-1.50)	(-0.78)	(-0.24)	(0.35)	(-0.44)
ΔNPR_Q(-2)	0.026	-0.005	0.024	0.044	-0.028	0.052
	(1.41)	(-0.10)	(0.36)	(0.46)	(-0.14)	(0.35)
ΔNPR_Q(-1)	-0.022	0.069	0.104	0.074	0.151	0.090
	(-1.02)	(1.05)	(1.36)	(0.68)	(0.76)	(0.54)
ΔNPR_Q1	0.017	**0.127****	**0.168****	**0.218****	**0.314***	**0.291***
	(1.00)	**(2.40)**	**(2.46)**	**(2.37)**	**(1.91)**	**(1.80)**
ΔNPR_Q2	0.011	-0.009	-0.001	0.099	0.256	0.212
	(0.61)	(-0.18)	(-0.01)	(0.98)	(1.55)	(1.40)
ΔNPR_Q3	0.011	0.068	0.114	**0.200***	**0.441****	**0.383****
	(0.68)	(1.30)	(1.41)	**(1.96)**	**(2.36)**	**(2.21)**
ΔNPR_Q4	-0.028	-0.031	-0.071	-0.121	-0.276	-0.166
	(-1.47)	(-0.52)	(-0.97)	(-1.14)	(-1.51)	(-1.01)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
N	247	247	247	247	247	247
R^2	0.155	0.245	0.238	0.288	0.277	0.295

Panel B: GCOC Firms

	(1)	(2)	(3)	(4)	(5)	(6)
	Short-Term			Long-Term		
	BHAR5	BHAR60	BHAR120	BHAR180	BHAR240	BHAR300
ΔNPR_Q(-4)	-0.002	-0.005	-0.023	0.005	0.021	-0.012
	(-0.10)	(-0.12)	(-0.51)	(0.10)	(0.34)	(-0.17)
ΔNPR_Q(-3)	-0.023	-0.046	-0.041	-0.023	-0.053	-0.083
	(-1.44)	(-1.16)	(-0.86)	(-0.37)	(-0.75)	(-1.05)
ΔNPR_Q(-2)	-0.020	0.010	-0.015	-0.003	0.018	-0.008
	(-1.14)	(0.27)	(-0.33)	(-0.06)	(0.28)	(-0.10)
ΔNPR_Q(-1)	-0.001	0.016	0.019	0.004	0.014	0.028
	(-0.08)	(0.31)	(0.38)	(0.06)	(0.16)	(0.31)
ΔNPR_Q1	0.045***	0.063	0.048	0.047	-0.021	-0.040
	(2.63)	(1.40)	(0.90)	(0.84)	(-0.26)	(-0.46)
ΔNPR_Q2	0.007	0.022	0.006	-0.042	-0.041	-0.089
	(0.38)	(0.55)	(0.13)	(-0.76)	(-0.40)	(-0.93)
ΔNPR_Q3	0.015	-0.081*	-0.045	0.051	0.047	0.132
	(0.74)	(-1.71)	(-0.90)	(0.72)	(0.48)	(1.25)
ΔNPR_Q4	0.012	-0.071	-0.133**	-0.134*	-0.167	-0.178
	(0.51)	(-1.26)	(-1.98)	(-1.70)	(-1.64)	(-1.40)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
N	290	290	290	290	290	290
R^2	0.160	0.132	0.167	0.162	0.179	0.182

Table 5 Robust Tests: Propensity Score Matched Sample

Panels A presents PSM results from the first stage estimate of the probability of receiving a GCOW in the subsequent year after a first time GCO. SIZE is the natural log value of total assets; BM is the book to market ratio; RET is annual stock return; LOSS, R&D, BIG4, NEWFIN are indicator variables equal to 1 if net income is negative, if R&D expenditure is greater than 0; if the firm's auditor is a big 4; if the firm has a new issuance of debt or equity during the current fiscal year; otherwise zero. INVEST is total investments scaled by total assets; LEV is total liabilities/total assets; CHG_LEV is the change of LEV. OCF is operating cash flow/total assets; ZSCORE is the probability of bankruptcy based on Zmijewski (1994); ANNLAG is the natural log of the difference between earnings announcement and the corresponding fiscal year end date; AGE is the natural logarithm of firm age, plus 1. There are 204 GCOW firms and 261 control GCOC firms. Panel B reports statistical differences between treated (GCOW) and control (GCOC) firms, and Panel C shows univariate test results for insider trading behaviour across 8 quarters around FGCO. Net purchase ratio (NPR) is the difference between the total volumes of insider purchases and sales, scaled by total insider trading volume in the same quarter. ΔNPV_Q(X) is the difference of NPR at the Xth in the year after (before if X is negative) receiving FGCO and the average NPR at Xth quarter in the previous four years. * p<0.1, ** p<0.05, *** p<0.01 indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Probability of (GCOW = 1)

Dep. Var. = GCOW	Coeff.	*p*-val.
SIZE	0.143	0.007***
BM	0.006	0.916
RET	-0.045	0.623
LOSS	-0.032	0.902
R&D	-0.112	0.421
INVEST	0.177	0.556
LEV	0.372	0.230
CHG_LEV	0.028	0.786
OCF	-0.031	0.891
ZSCORE	-0.010	0.818
ANNLAG	-0.214	0.185
BIG4	-0.184	0.173
NEWFIN	-0.290	0.026***
AGE	-0.059	0.615
Year FE		Yes
Industry FE		Yes
Pseudo R^2		0.039
N		485
χ^2		25.81

Panel B: Covariate Balance: Propensity Score Matched Sample

	Treated (GCOW = 1)	Control (GCOW = 0)	Difference	*t*-statistics
SIZE	4.125	4.128	-0.003	-0.020
BM	0.825	0.807	0.018	0.140
RET	-0.318	-0.308	-0.010	-0.160
LOSS	0.931	0.937	-0.006	-0.240
R&D	0.598	0.606	-0.008	-0.160
INVEST	0.227	0.223	0.004	0.180
LEV	0.646	0.643	0.003	0.100
CHG_LEV	0.472	0.470	0.002	0.020
OCF	-0.344	-0.344	0.000	0.020
ZSCORE	2.073	2.062	0.011	0.030
ANNLAG	4.349	4.334	0.015	0.380
BIG4	0.657	0.654	0.003	0.060
NEWFIN	0.672	0.674	-0.002	-0.050
AGE	2.129	2.139	-0.010	-0.200

Panel C Insider Trading Behaviour: Propensity Score Matched Sample

	Treated (GCOW = 1)	Control (GCOW = 0)	Difference	*t*-statistics
Market Reaction				
BHAR[0,5]	-0.019	-0.026	0.007	0.57
BHAR[0,60]	0.091	-0.070	0.161	3.86***
BHAR[0,120]	0.187	-0.128	0.316	4.90***
BHAR[0,180]	0.261	-0.202	0.463	5.95***
BHAR[0,240]	0.435	-0.220	0.655	6.06***
BHAR[0,300]	0.419	-0.285	0.704	6.83***
Insider Trading				
ΔNPV_Q(-4)	0.162	0.065	0.097	1.670
ΔNPV_Q(-3)	0.058	0.106	-0.048	-0.800
ΔNPV_Q(-2)	0.069	0.033	0.036	0.630
ΔNPV_Q(-1)	-0.016	0.014	-0.029	-0.620
ΔNPV_Q1	0.141	0.009	0.132	2.460***

ΔNPV_Q2	0.043	0.002	0.041	0.780
ΔNPV_Q3	-0.023	-0.041	0.019	0.330
ΔNPV_Q4	0.012	-0.040	0.052	1.110

Table 6: Insider Reaction for GCOW and GCOC Firms Conditioned on Cited Reasons

This table reports insider reaction conditioned on cited reasons in audit reports. Panel A and Panel B are for GCOW and GCOC Firms, respectively. Net purchase ratio (NPR) is the difference between the total volumes of insider purchases and the total volume of sales, scaled by the total insider trading volume in the same quarter. ΔNPV_Q(X) is the difference of NPR at the Xth in the year after (before if X is negative) receiving FGCO and the average NPR at Xth quarter in the previous four years. FIN_ISS is an indicator variable equal to 1 if the audit report cites any financing issues, 0 otherwise. * p<0.1, ** p<0.05, *** p<0.01 indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: GCOW Firms

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Before First-Time GCO				After First-Time GCO			
	ΔNPR_Q(-4)	ΔNPR_Q(-3)	ΔNPR_Q(-2)	ΔNPR_Q(-1)	ΔNPR_Q(1)	ΔNPR_Q(2)	ΔNPR_Q(3)	ΔNPR_Q(4)
FIN_ISS	-0.024	-0.069	0.029	0.018	**0.117****	**0.134****	**0.179****	0.081
	(-0.21)	(-1.47)	(0.62)	(0.32)	**(2.12)**	**(2.08)**	**(2.01)**	(0.98)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	247	247	247	247	247	247	247	247
R^2	0.151	0.263	0.231	0.259	0.169	0.223	0.243	0.175

Panel B: GCOC Firms

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Before First-Time GCO				After First-Time GCO			
	ΔNPR_Q(-4)	ΔNPR_Q(-3)	ΔNPR_Q(-2)	ΔNPR_Q(-1)	ΔNPR_Q(1)	ΔNPR_Q(2)	ΔNPR_Q(3)	ΔNPR_Q(4)
FIN_ISS	0.015	-0.075	0.083	0.024	-0.038	-0.076	0.026	0.104
	(0.12)	(-0.56)	(0.83)	(0.22)	(-0.63)	(-0.97)	(0.16)	(1.20)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	290	290	290	290	290	290	290	290
R^2	0.145	0.261	0.242	0.272	0.161	0.223	0.238	0.167

Table 7 Insider Trading Profits by Information Hierarchy

This table reports event study results on insider trading profits. Panel A and Panel B report insider purchase and sale profits, respectively. Insiders are classified as top executive (CEO, CFO, COO, CIO, CTO, general counsel, general manager or partner, managing director or partner, president and executive or senior vice president), Director (all other directors not in the top executive group) and Officer (all other officers not in the top executive and director groups). * p<0.1, ** p<0.05, *** p<0.01 indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Insider Purchases

	GCOW				GCOC			
	All [N = 1,442]	Top Managers [N = 670]	Directors [N = 687]	Officers [N= 85]	All [N = 1,274]	Top Managers [N = 552]	Directors [N = 658]	Officers [N= 64]
BHAR[0,5]	0.049**	0.034*	0.063*	0.029	0.021**	0.015	0.030	-0.004
BHAR[0.60]	0.149**	0.148**	0.149***	0.134**	-0.039**	-0.056*	-0.019	-0.088**
BHAR[0,120]	0.201***	0.174***	0.228***	0.206**	-0.139***	-0.135***	-0.153***	-0.105**
BHAR[0,180]	0.245***	0.208***	0.269***	0.253**	-0.158***	-0.141***	-0.189***	-0.172**

Panel B: Insider Sales

	GCOW				GCOC			
	All [N = 1,212]	Top Managers [N = 390]	Directors [N = 641]	Officers [N= 181]	All [N = 1065	Top Managers [N = 492]	Directors [N = 429]	Officers [N= 144]
BHAR[0,5]	-0.017*	-0.002	-0.030*	-0.005	-0.024*	-0.014	-0.039*	-0.012*
BHAR[0.60]	-0.107**	-0.054*	-0.164***	-0.005	-0.047*	-0.111**	0.061	-0.145**
BHAR[0,120]	-0.138***	-0.031	-0.234***	-0.007	-0.272***	-0.297***	-0.205***	-0.357***
BHAR[0,180]	-0.176***	-0.072*	-0.299***	0.062*	-0.405***	-0.437***	-0.350***	-0.370***

Table 8: Insider Herding

This table contains logit regressions predicting insider trading as a function of other insider trading at the firm. The dependent variable is an indicator for an insider trade on day t by insider role. Insiders are classified as top managers (Top_man), managers (Man), Directors and Officers. Size is the log of total assets. BM is the book-to-market ratio. LEV is total liabilities to total assets ratio; LOSS is an indicator variable equal to 1 if the net income is negative, otherwise 0; RET is annual stock return; R&D is an indicator variable equal to 1 if the R&D expenditure is greater than 0, otherwise 0. All regressions include year and industry fixed effects. Standard errors are heteroscedasticity robust and clustered at firm level, and t-statistics are reported in parentheses. * p<0.1, ** p<0.05, *** p<0.01 indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Insider Purchase

	GCOW			GCOC		
	(1)	(2)	(3)	(4)	(5)	(6)
	Top_Man_t	$Director_t$	$Officer_t$	Top_Man_t	$Director_t$	$Officer_t$
$Top\_Man_{t-2,t}$	2.217***	-2.138***	-0.596	1.449***	-1.312***	-0.399
	(7.26)	(-7.53)	(-1.36)	(4.72)	(-4.14)	(-0.95)
$Director_{t-2,t}$	-2.131***	2.818***	-0.729**	-1.686***	1.976***	-1.189***
	(-5.57)	(7.86)	(-2.37)	(-7.02)	(7.47)	(-3.31)
$Officer_{t-2,t}$	-1.341**	-0.532	3.636***	-0.131	-0.700*	1.807***
	(-1.99)	(-1.31)	(6.58)	(-0.34)	(-1.90)	(5.54)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
N	8339	8339	8339	9892	9892	9892
adj. R^2	0.232	0.189	0.471	0.209	0.165	0.367

Panel B: Insider Sale

	GCOW			GCOC		
	(1)	(2)	(3)	(4)	(5)	(6)
	Top_Man_t	$Director_t$	$Officer_t$	Top_Man_t	$Director_t$	$Officer_t$
$Top\_Man_{t-2,t}$	2.719***	-2.785***	-1.852***	0.976*	-1.010	-0.157
	(5.24)	(-3.63)	(-3.28)	(1.73)	(-1.61)	(-0.28)
$Director_{t-2,t}$	-3.040**	4.370***	-2.193***	-3.235***	3.394***	-1.173**
	(-2.40)	(2.61)	(-5.52)	(-5.40)	(5.81)	(-2.44)
$Officer_{t-2,t}$	-2.363***	-2.696***	3.162***	-0.365	-0.770	0.414
	(-3.50)	(-3.30)	(4.78)	(-0.39)	(-1.27)	(0.44)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
N	10132	10132	10132	10132	10132	10132
adj. R^2	0.1!2	0.123	0.253	0.102	0.105	0.140

Table 9: Likelihood of Changing Auditor after FGCO Conditioning on Insider Trading

This table reports the logit regression results for the likelihood of changing the auditor after receiving FGCO. Net purchase ratio (NPR) is the difference between the total volumes of insider purchases and the total volume of sales, scaled by the total insider trading volume in the same quarter. ΔNPV_Q(X) is the difference of NPR at the Xth in the year after (before if X is negative) receiving FGCO and the average NPR at Xth quarter in the previous four years. * p<0.1, ** p<0.05, *** p<0.01 indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)
	Logit(CHG_AUDITOR = 1)		
	All FIRMS	GCOW	GCOC
ΔBSSI_Q1	0.030	0.189	-0.269
	(0.24)	(1.03)	(-1.23)
ΔBSSI_Q2	-0.215	-0.294	-0.273
	(-1.61)	(-1.40)	(-1.37)
ΔBSSI_Q3	**0.385*** **	**0.428** **	**0.394***
	(3.11)	**(2.28)**	**(1.87)**
ΔBSSI_Q4	-0.010	-0.034	-0.010
	(-0.07)	(-0.14)	(-0.04)
Intercept	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
N	537	247	290
R^2	0.121	0..205	0.154

Appendix A1. Descriptive Statistics for the Subsample

Panel A reports the data processing steps. Panel B report the data processing for our sample construction. the descriptive statistics for the period from 2000-2007 by replicating Chen et al (2013) and Dhaliwal et al. (2015). NPV is the net purchase ratio for insiders, which is measured as the natural logarithm of 1 plus the absolute total dollar amount of net insider trading (in thousands) over a fiscal year, with a positive (negative) sign added for net purchases (net sales)

Panel A: Sample construction

Steps	**Database**	**Matching Criterion**	**# of Obs Decrease**	**# of Firms**
1	Audit Analytics	Initial number of first-time GCO firms during fiscal year end from 1999-2015		9968
2	Edgar	Delete first-time GCOs which are misidentified by the Audit Analytics database after checking with Edgar (occurred before 1999)	-1171	8797
3	Compustat	Delete first-time GCO firms which not matched with the Compustat database based on CIK	-5864	2933
4	CRSP	Delete first-time GCO firms that do not survive after one year	-1476	1042
Missing data cleaning				
5	Audit Analytics	No subsequent audit report available	-379	663
6	Compustat	Missing accounting data during the year receiving FGCO	-126	537

Panel B: Subsample descriptive statistics

	N	Mean	Std.	p25	Median	p75
NPV	765	-87.73	2030.79	0.000	0.000	47.40
SIZE	763	3.973	1.648	2.683	3.745	4.979
BM	751	0.575	1.718	0.073	0.465	1.164
RET	684	-0.438	0.543	-0.840	-0.600	-0.202
LOSS	762	0.940	0.238	1.000	1.000	1.000
R&D	763	0.548	0.498	0.000	1.000	1.000
INVEST	762	0.219	0.252	0.028	0.107	0.328
LEV	762	0.680	0.383	0.396	0.661	0.883
CHG_LEV	743	0.684	1.385	0.023	0.273	0.853
OCF	757	-0.368	0.481	-0.638	-0.173	0.004
ZSCORE	721	2.873	3.712	0.365	1.993	4.772
ANNLAG	761	4.336	0.371	4.127	4.489	4.654
BIG4	765	0.641	0.480	0.000	1.000	1.000
NEW_FIN	758	0.722	0.448	0.000	1.000	1.000
AGE	765	2.145	0.717	1.792	2.079	2.565

Chen et al. (2013) and Dhaliwal et al. (2015) constructed their samples based on the first 3 steps plus step 6 as in Panel A. They kept firms without insider trading as well as firms do not survive in one year in their samples. In order to valid the appropriateness of our sample. We further report the descriptive statistics of the subsample for the period from 2000-2007 as per Chen et al. (2013) and Dhaliwal et al. (2015). In line with the literature, we add back those firms do not have an available audit report in the subsequent period after FGCO and do not have return data available in 240 trading days. We retain 765 and 634 first-time GCO (FGCO) firms for the unbalanced and balanced samples during this period, respectively. These numbers are very close to 801 firms in Chen et al. (2013)'s paper, and 707 firms in Dhaliwal et al. (2015)'s paper. In addition, Dhaliwal et al. (2015) report that during 2000-2007, the net purchase value (NPV) associated with top insiders was about -50. We report -87.73 for NPV of corporate insiders (including top insiders and other directors and officers). Other descriptive statistics are not comparable directly because their papers consider both FGCO and financial distressed firms. However, one important statistical point we can notice is that we have worse firm performance than those in Chen et al (2013) and Dhaliwal et al (2015). For instance, firms in

our sample have lower return (-0.438 vs 0.023 vs 0.029) and short- and long-term investment ratio (0.219 vs 0.278 vs 0.284), worse operating cash flow (-0.368 vs -0.108 vs -0.103) and are more likely to have a negative net income (0.940 vs 0.869 vs 0.896). These differences are due to the mitigation effect causing by the introduction of financial distressed firms in the sample. By nature, financial distressed firms should have relative better financial performance than GCO firms.

Appendix A2: Variable Definitions

Variable Name	Definition
GCOW	going concern opinion withdrawal
GCOC	going concern opinion continuing
SIZE	natural log value of total assets
BM	book to market ratio
RET	past annual stock return
LOSS	an indicator variable equals to 1 if the net income is negative, otherwise 0
R&D	an indicator variable equals to 1 if the research and development expenditure is greater than 0, otherwise 0
INVEST	long and short-term investments scaled by total assets
LEV	total liabilities to total assets ratio
OCF	operating cash flow scaled by total assets
ZSCORE	probability of bankruptcy score based on Zmijewski (1984)
ANNLAG	the natural log value of the difference between earnings announcement date and the corresponding fiscal year end date
NEWFIN	an indicator variable equals to 1 if the firm has a new issuance of debt or equity during the current fiscal year, 0 otherwise
AGE	firm age measured as the natural logarithm of the number of years the firm recorded in the Compustat database plus 1
BIG4	an indicator variable equals to 1 if the auditors are Big 4 accounting firms, 0 otherwise
BHAR	market adjusted buy and hold abnormal returns, calculated as tock return minus market return, and then compounding over time
BSFI	the number of purchases less the number of sales scaled by the total number of trades for each firm quarter
BSSI	the total number of shares bought less the total number of shares sold scaled by the total insider trading volume for each firm quarter
BUY	an indicator variable if both BSFI and BSSI are greater than 0

Appendix A3: Cited Reasons in Going Concern Opinion

Category 1 includes issues related to *poor financial performance* such as present or recurring losses, negative cash flows or poor working capital. **Category 2** indicates issues *regarding financing problems* like debt defaults, debt covenant violations, loss of credit facilities, or the need for, or problems in securing, additional financing. **Category 3** is for *operating issues* including reference to loss of a key customer, problems with suppliers, or business combine nation. **Category 4** is other issues.

Issue	Category
Absence of significant revenues	1
Accumulated/retained earnings deficit	1
Assets – inadequate, limited, immaterial or impaired	1
Bankruptcy	4
Benefit Plan, Pension, etc. - Obligations	3
Changed industry or business	3
Compensation deferred	4
Competitor threat	3
Credit line reduced, unavailable or due	2
Credit quality deterioration	2
Debt covenants/agreements uncertain or not in compliance	2
Debt is substantial	2
Decline in revenue	1
Derivatives - obligations, losses	1
Development stage	3
Discontinued/Disposal of Operations	3
Exploration/Pre-exploration Stage	3
Gross margin – negative	1
Initial loss	1
Insufficient / limited cash, capital or liquidity concerns	1
Liabilities exceed assets	1
Liquidation of assets	1
Litigation contingencies	4
Need for additional financing for funding obligations and/or servicing debt	2
Need for additional financing for growth or to meet business objectives	2
Need for additional financing to sustain operations	2
Negative cash flow from operations	1
Net losses since inception	1
Net/Operating Loss (including recurring losses)	1
No dividends	4
No Marketable Product(s)	3
Not commenced, limited or no operations	3
Notes Payable/Debt - Default, Due, delinquency	2
Product demand or pricing - decline or limited	3
Profitability concerns	1
Recoverability of (natural) resources - uncertain	4
Refinancing contingencies	2
Regulatory capital - decline or deficiency	4
Regulatory settlements, obligations and contingencies	4
Restructuring contingencies	3
Seeking or needs to combine with existing company	3
Stock/share Option Exercise Risk(s)	1
Stockholder equity or partner capital - deficiency or decrease	1
Subsidiary - spin off	3
Vendor-supplier disputes or disruptions	3
Working capital/current ratio deficit/inadequacy	1